

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
7 November 2002 (07.11.2002)

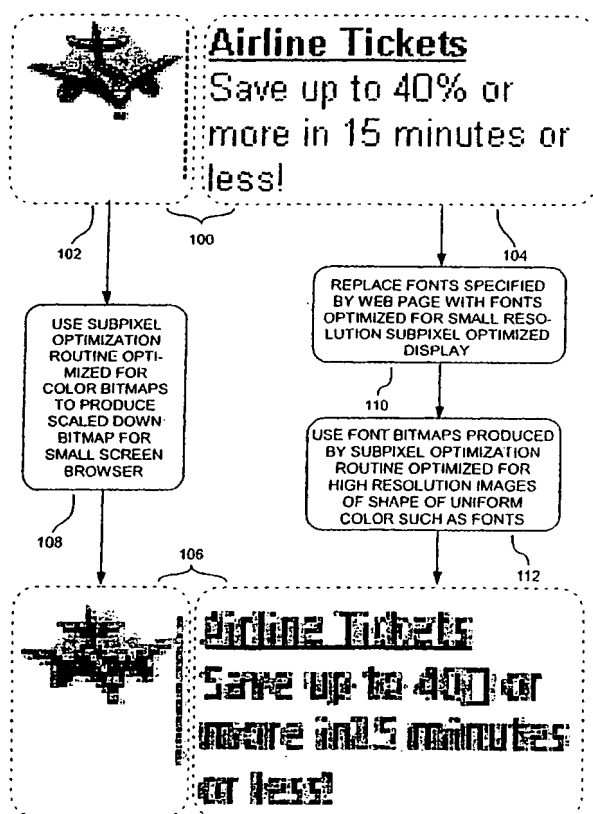
PCT

(10) International Publication Number  
**WO 02/089105 A3**

- (51) International Patent Classification<sup>7</sup>: **G09G 5/00** 60/296,283 5 June 2001 (05.06.2001) US  
60/296,281 5 June 2001 (05.06.2001) US  
(21) International Application Number: PCT/US02/14217 60/322,922 17 September 2001 (17.09.2001) US  
(22) International Filing Date: 2 May 2002 (02.05.2002)  
(25) Filing Language: English  
(26) Publication Language: English  
(30) Priority Data:  
60/288,287 2 May 2001 (02.05.2001) US  
60/296,275 5 June 2001 (05.06.2001) US  
60/296,327 5 June 2001 (05.06.2001) US  
60/296,237 5 June 2001 (05.06.2001) US  
60/296,274 5 June 2001 (05.06.2001) US  
60/296,284 5 June 2001 (05.06.2001) US  
60/296,231 5 June 2001 (05.06.2001) US  
60/296,224 5 June 2001 (05.06.2001) US  
60/296,426 5 June 2001 (05.06.2001) US  
60/296,273 5 June 2001 (05.06.2001) US  
(71) Applicant (for all designated States except US): **BIT-STREAM, INC.** [US/US]; 215 First Street, Cambridge, MA 02142 (US).  
(72) Inventors; and  
(75) Inventors/Applicants (for US only): **KAASILA, Sampo, J.** [SE/US]; 6 Squirrel Run Road, Plaistow, NH 03865 (US). **COLLINS, John, S.** [GB/US]; Apartment 9E, 9 Hawthorne Place, Boston, MA 02114 (US). **PORTER, Edward, W.** [US/US]; One Longfellow Place, Apt. 3018, Boston, MA 02114 (US).  
(74) Agent: **PORTER, Edward, W.**; Porter & Associates, One Broadway, Suite 600, Cambridge, MA 02142 (US).  
(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,

[Continued on next page]

(54) Title: METHODS, SYSTEMS, AND PROGRAMMING FOR PRODUCING AND DISPLAYING SUBPIXEL-OPTIMIZED IMAGES AND DIGITAL CONTENT INCLUDING SUCH IMAGES



(57) Abstract: A method of accessing digital content from a device in which said content is stored. Performing a down scaling and subpixel optimization process. Basic processes and data representations that may be used according to present invention. Digital content (100), including one or more bitmap images (102) and text (104) is displayed in a subpixel optimized downscaled format (106).

WO 02/089105 A3

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US02/14217

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G09G 5/00

US CL : 345/660

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 345/660,670,666

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
down scaling

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6,236,433 B1 (ACHARYA et al) 22 May 2001, see whole document	1-30

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T"

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X"

document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&"

document member of the same patent family

Date of the actual completion of the international search

12 August 2002 (12.08.2002)

Date of mailing of the international search report

Name and mailing address of the ISA/US

Commissioner of Patents and Trademarks  
Box PCT  
Washington, D.C. 20231

Facsimile No. (703)305-3230

Authorized officer

Michael Razavi

Telephone No. 703-305-9600